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Nordic physicians' management of asthma and chronic obstructive pulmonary disease

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Summary Failure to follow management guidelines may result in impaired health care. We aimed to overview physicians' management of acute and stable asthma and chronic obstructive lung disease (COPD) in the Nordic countries based on scientific reports during the last 10 years.

Strategies to improve asthma management should consider applying more frequently good quality spirometry in diagnosing asthma and COPD. There still appear to be an under-use of glucocorticosteroids in acute as well as in stable disease in the Nordic countries, especially among asthmatic patients. An over prescription of antibiotics in asthma patients were observed. In COPD patients there are uncertainty in management with under use of ipratropiumbromid and inappropriate use of corticosteroids as well as inadequate knowledge about nebulizing systems, dosing of medicines, monitoring severity of disease and tools for quality control.

Further improvement may include educational approaches like multidisciplinary approach for medical students and self-learning groups of doctors. Modern Internet technology and telemedicine may be new ways to proceed in improving health care for patients with asthma and COPD.

Introduction

Failure to follow management guidelines may result in poor control of disease and reduced quality of life. The aim of this presentation is to give a report on the physicians' management of acute and stable asthma and chronic obstructive lung disease (COPD) in the Nordic countries. Scientific reports during the last 10 years giving data on asthma or COPD management have been included. The outcomes reported have been evaluated according to standards in national and international guidelines.[1–6]

When considering management of asthma and COPD in the community, including diagnosis and

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Table 1 Commonly used guidelines for physicians' management of asthma and COPD in the Nordic countries.

Guideline title	Asthma	Chronic obstructive pulmonary disease (COPD)	Nordic or local guideline only	References
Global strategy for asthma management and prevention (GINA)	x			6
Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease (GOLD)		x		5
Nordic Asthma Consensus Group: Nordic consensus report on asthma management	x		x	4
Danish Pulmonary Society: Diagnosis and treatment of chronic obstructive pulmonary disease		x	x	2
Finnish National Guidelines for Prevention and Treatment 1998–2007: Chronic bronchitis and chronic obstructive pulmonary disease		x	x	3
Asthma programme in Finland 1994–2004	x		x	1

treatment, it is important to consider the total population of asthma and COPD patients. A problem is that many clinical studies of high quality include a very small and highly selected fraction of the total patient population with problems extrapolating such data to a larger ''real life'' population of patients with obstructive lung disease[7] (Table 1).

Asthma and COPD

Stable disease—diagnosis

Management of diagnosis of obstructive lung disease was, based on their own report, evaluated among 119 general practitioners and 48 hospital doctors in the county of Hordaland.[8] In spite of recommended guidelines, 20% of the doctors did not perform any kind of spirometry when diagnosing obstructive pulmonary disease. Spirometry after inhalation of bronchodilators or corticosteroids was performed by 29% of the doctors when diagnosing chronic obstructive pulmonary disease and by 43% when diagnosing asthma. In the AIRE study including patients from seven European countries, including Sweden, as much as 45% of the patients reported that their doctor had never performed a lung function test.[9]

National treatment programmes for asthma and COPD in Finland have in the past few years increased the need for spirometry.[1,10] The quality of spirometric examinations in Finland had improved from 1990 up to 1998. In 1998, about 400 000 spirometric examination were performed. The main qualitative insuffiences were related to preparation of the subjects for the examination, performance of the test, recognition of a successful spirometric curve and evaluation of reproducibility of the examination.[10]

When focusing on spirometry in the diagnosis of asthma and COPD in new and updated guidelines there are some problems to consider. For example, the risk for over-diagnosis of COPD in those aged >70 years.[11] In addition, some groups of subjects might be more likely to have asthma and COPD[12] or be more likely to experience complications of the disease.[13] Should they be treated with special care? Additional questions to be asked is: Should general practitioners screen smokers for COPD? So far, there is no evidence that spirometry screening aids smoking cessation, the single most effective measure for management of COPD.[14]

In a recent Danish study in general practice 54% of COPD patients had spirometry measurement and

treatment with inhaled corticosteroids was about 50% irrespective of severity of the disease according to GOLD.[15]

Stable disease—treatment and follow-up

Among 119 general practitioners and 48 hospital doctors in the county of Hordaland 88% of the doctors preferred to treat asthma with inhalation of β-agonists or inhalation of corticosteroids, or both.[8] The asthma treatment appeared to be in reasonable accordance with the guidelines. There was, however, a greater uncertainty concerning the treating of chronic obstructive pulmonary disease. Seventy-three percent treated them with β2-agonists, 48% with anticholinergics and 58% with inhaled glucocorticosteroids. Thus, the guidelines were followed to a lower extent regarding chronic obstructive lung disease.

The consultation rate by asthma severity was evaluated in the European Community Respiratory Health Survey.[16] In Bergen, Norway 25% of the subjects with a physician's diagnosed asthma had seen a doctor during the last year, while this was somewhat higher in Reykjavik, Iceland (33%) and three cities in Sweden (37%). Practically all subjects with an attack of asthma during the last year living in Bergen, Norway and Reykjavik, Iceland had seen a doctor during the last year, while only around 75% of the patients had done so in three cities in Sweden. The frequency of hospitalizations tended, however, to be somewhat higher in Sweden than in Norway. This might imply more unscheduled visits in Norway and Iceland than in Sweden, leaving more room for educational and preventive strategies in these countries.

In the AIRE study including patients from 7 European countries including Sweden, only 5% of the population of patients met all the goals of the GINA guideline.[9,17] The most significant findings were the high levels of both unscheduled emergency visits and hospitalization experienced by the asthma patients. This was underlined by a high level of as-required use of bronchodilator medication and a low level (26%) use of anti-inflammatory medication among patients with severe and moderate persistent asthma. This suggests that asthma may be under treated in some patients. There were not significant differences between the countries, although this is not reported explicitly.

There is a great variation in the prevalence of physician diagnosed asthma and drug utilization worldwide as observed in the European Community Respiratory Health Survey.[16] The prevalences of anti-asthma medication were significantly below the median in Reykjavik, Iceland and Bergen, Norway, while this was above the median in Umeå, Sweden. In general, during the years 1991–1994, the highest prevalence of inhaled bronchodilator use in the last 12 months was observed in Sweden (82%) and was lowest in Norway (45%). The difference in use of inhaled anti-inflammatory medication was only somewhat lower in Iceland (13%) and Norway (15%) than in Sweden (20%), though clearly not that different as for inhaled bronchodilators.

In another report from the Drug Education Project (DEP) group including five European countries, among them Sweden and Norway, they observed a variation in treatment of asthma patients between GP's in different countries. They found that there was a 25–56% under-prescribing of oral steroids, and a 21–45% over-prescribing of antibiotics, also including Sweden and Norway.[18]

In a report from the DEP,[19] 83% of the asthma patients in Norway and 79% of those in Sweden received inhaled bronchodilator therapy. The corresponding figures for use of inhaled corticosteroids were 45% in Sweden and 46% in Norway. Also the knowledge about asthma treatment of exacerbations and attitudes to treatment for these were comparable. Thus, in general practice there is very little variation in drug prescription in Sweden and Norway among general practitioners.

An online asthma survey produced results that agree highly with more resource demanding surveys of treatment. Many asthmatics had a low level of asthma control. The survey indicated that under use of inhaled steroids was one of the reasons why the goals set up in asthma guidelines so far have not been reached.[20]

In a report from the European Community Respiratory Health Survey,[21] the characteristics of the subjects being more likely to be treated was addressed. There was no gender difference in Sweden, Iceland and Norway, opposed to some other countries where women were more likely to be treated for the same amount of asthma-like symptoms. Furthermore, smokers were less likely and atopic subjects more likely to be treated with the same amount of symptoms in the Scandinavian countries. The odds for being treated appeared to be higher in Sweden and Iceland compared with Norway when presenting with the same amount of asthma-like respiratory symptoms.

Acute disease—diagnosis, treatment and follow-up

All patients with obstructive lung disease who were admitted to three Norwegian hospitals in a 3

months period were assessed whether management was in accordance with international guidelines.[22] Altogether 176 patients were admitted of whom 60% were above 65 years of age. Thirty-one percent had mild, 42% moderate, 21% severe and 6% life-threatening disease. Almost all patients with moderate and severe disease were treated with β2 agonists on admission (Fig. 1). Among the patients with moderate disease, 25% did not receive glucocorticosteroids during the first 3 h in hospital. The proportion of patients treated with theophylline was lower among those with mild disease than among those with moderate disease. The authors concluded that guidelines were followed to a high degree in patients with severe or life-threatening obstructive lung disease, but only partly in those with mild or moderate disease. This was specially related to the medication with glucocorticosteroids.

In a Danish telephone survey[23] of 71 Danish hospitals with the capacity to receive acutely ill medical patients they observed that there was inadequate knowledge of treatment and treatment devices. In addition, the majority of physicians had no specific parameters for monitoring severity of disease. Suggestions for a practical treatment guideline for the initial 2-h of the management of patients with acute severe asthma and COPD have been proposed.[4,24,25] The aim is to increase the quality of guideline and also make guideline writers aware of the responsibility of making their recommendations work.[25]

All hospitals in Denmark with emergency facilities were surveyed in twice, 1996 and 1999.[26] Even though national guidelines were distributed,[2] few changes were observed during these years. An insufficient handling of nebulizers, a huge variation in the delivered dose of bronchodilators and a suboptimal use of corticosteroids was found. The study indicates a need for implementing tools for quality control. Also in hospital doctors in Norway the knowledge of how to use inhalation devices should be improved.[27]

The doctors' and management of patients with asthma and COPD

Wahlstrøm and coworkers[28] tried to identify differences and similarities in views regarding asthma management among general practitioners in Germany, Netherlands, Sweden and Norway and explore reasons for suboptimal performance. They aimed to develop a tailored educational intervention. The majority of doctors showed confidence in the effectiveness of the pharmaceutical treatment of asthma. The main treatment goals were either conceived as getting the patient symptom free (Norway, Netherlands and Germany) or to control inflammation (Sweden). The existence of qualitatively different ways of experiencing and practicing asthma management, both in and between countries, calls for consideration when trying to implement general evidence-based treatment guidelines. A variation of approaches in continuing medical education of GPs is needed to address such existing beliefs and conceptions that could sometimes be opposed to the content of educational messages.

Many doctors has accepted the guidelines for asthma treatment, however, the proportion of their

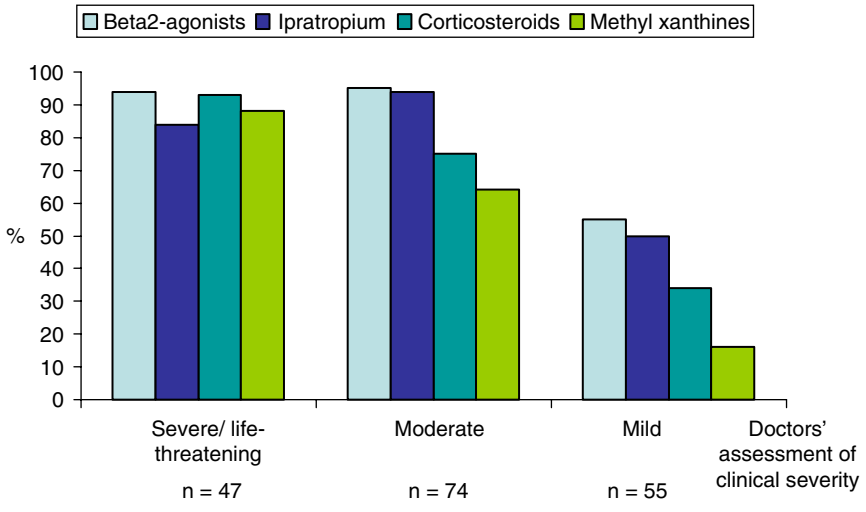

Figure 1 Initial anti-obstructive drug treatment in 176 patients with obstructive lung disease acutely admitted to hospitals in Western Norway in 1997, by clinical severity of disease.

patients treated accordingly differed. Swedish and Norwegian doctors paid more attention to the importance of the inflammatory features of asthma than doctors from Germany and Slovakia.[19] About 45% of the patient in Sweden and Norway included in this project were treated with inhaled corticosteroids.

In Sweden, the GPs described qualitatively different ways of experiencing asthma management. The main categories were: transferring factual knowledge to the patient, the patients' application of knowledge in managing disease, improving the patients' understanding of the disease as a prerequisite for self-management and how to improve the patients' quality of life despite the asthma disease. These different approaches to the management may have implications for the care and educational program on asthma.[29]

The patients' perspective

In a Survey by general practitioners and their patients in Norway[30] about 1/3 of the patients experienced their asthma to be uncontrolled. The physicians tended to put more weight on respiratory symptoms and clinical findings, while the patients put more weight on everyday activities and their ability to cope with them. This was also observed in the AIRE study where patients from Sweden participated.[9] The communication between patients and physicians including preferred values for the patients life is thus of importance in the process of shared decision making and challenges our traditional ways of thinking.

It appears that many patients often settle for a quality of life considerably less than that achievable if recommended management practices and asthma treatment are used. Improving patients' and physicians' expectations of what can be achieved with asthma therapy, along with implementation of guidelines, may lead to improved overall asthma control.

Management of asthma and COPD in the community

In Finland, the Ministry of Social Affairs and Health recognized asthma as an important public health issue and launched in 1994 a 10 year program emphasizing guideline implementation and follow-up.[1] This included recovery of as many patients as possible with early asthma, that they should feel well with ability for work and functional capacity as others at same age, reduce the percentage of patients with severe or moderate asthma including hospital beds and costs per patient.[31] An evaluation in the middle of the period concluded that all goals at least partly have been achieved. The decrease in number of hospital beds by 50% has been fully achieved.[31] On the community level Finland has been a leading force in Nordic national strategies on asthma and COPD.

In Finland, the Finnish Asthma Programme has been evaluated after 6 years. The basic structure of equipment and organization for the diagnosis and treatment of asthma has been set up in the primary health services.[32]

Strategies to improve care

An educational program for peer groups of doctors in order to improve the treatment of asthma has been developed.[33] The DEP project group concluded that improvement in asthma treatment is possible with an educational program based on self-learning in small groups. In this program the Norwegian doctors improved significantly, but not the Swedish doctors. Differences in attitudes to and experiences with guidelines as well as with continuing medical education programs, and differences in opportunities for change, including prevailing trends in prescribing behavior, can explain the observed variation.[33]

Also other strategies to improve asthma care has been developed and evaluated. Can the outcome of asthma management be improved by using modern Internet-based technology to monitor asthma patients? Three hundred asthmatic patients were randomized to three parallel groups in a 6-month prospective Danish study. Internet-based monitoring was favorable compared with general practitioner or specialist monitoring regarding symptoms, quality of life, lung function and airway responsiveness.[34]

Summary

Strategies to improve asthma management should consider the importance of both patients' accounts and physiological measures, the degree of co-operation between doctors and their patients and eventually the ways and styles of acquiring new knowledge about asthma.[35] Also educational approaches like multidisciplinary approach for medical students and self-learning groups of doctors may be beneficial in improving management of patients with asthma and COPD.[33,36]

In practice improvement can be done by applying more frequently good quality spirometry in diagnosing asthma and COPD. Regarding treatment of obstructive lung disease there appeared to be an under-use of glucocorticosteroids in acute as well as in stable disease in the Nordic countries, especially among asthmatic patients. There is still observed an over prescription of antibiotics in asthma patients. In COPD patients there are uncertainty with under use of ipratropiumbromid and inappropriate use of corticosteroids as well as inadequate knowledge about nebulizing systems and dosing of medicines, monitoring severity of disease and implementing tools for quality control.

Modern Internet technology may give the patient a better communication with doctors and disease monitoring both in primary and secondary health care. Telemedicine may be a new way to proceed in improving health care for patients with asthma and COPD.

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